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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,229	04/03/2001	Mituo Maeda	2185-0526P-SP	9077

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EXAMINER

SADULA, JENNIFER R

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,229

Applicant(s)

MAEDA ET AL.

Examiner

Jennifer R. Sadula

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/3/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The following Office Action is a complete response to the amendment and arguments filed 2/3/2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Asai et al., U.S. Patent No. 5,428,100 ("Asai").

Asai teaches a wholly aromatic polyester composition containing a wholly aromatic polyester resin (40-79% by weight) that exhibits a liquid crystalline property in a molten state, glass fiber (5-25% by weight) and a fluorocarbon polymer (0.5-10% by weight). The polyester obtained forms an anisotropic melt at a temperature of 400°C or below (column 4, lines 8-20). The wholly aromatic polyester resin contains repeating units (A1) derived from an aromatic hydroxycarboxylic acid (B1-2) an aromatic dicarboxylic acid; and (C1) an aromatic diol wherein the specific mixture may be as specified in example a of column 7 and thus Asai anticipates the claimed invention. Flexural test pieces were shaped and examined (column 10, lines 54-58 and table 1). With regard to Applicant's claim 3, please note column 11, lines 30-36.

Asai teaches needlelike or fibrous filler materials such as graphite or talc or glass (10:6) wherein the upper limit of the average particle size is 50 µm or less from the viewpoint of the

Art Unit: 1756

molded articles and around 5 μm or more particle size (7:50-8:2). The fiber may be treated with a multitude of different materials. Additional filler materials include silica-alumina, wollastonite, potassium titanate whisker, aluminum borate whisker, etc whereas reinforcement fillers are for use against such things as heat stabilization, UV absorption, colorant, antioxidation, and mold release (10:3-10).

With specific regard to Applicant's claim 5, Asai teaches the materials to have been melt-kneaded (column 10, lines 38-40) via a twin-screw extruder (PCM-30, mfd. by Ikegai Iron Works, Ltd. (column 12, lines 2-3)). This twin-screw extruder has an upper stream side and a lower stream side and it is well known in the art of extrusion to perform the functions of this particular extruder as specified by the Applicants.

Claims 1-6, 9-10, 12-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagano et al., U.S. Patent No. 5,976,406 ("Nagano").

Nagano teaches a liquid crystal polyester resin composition wherein the compound has a flow temperature of between 310 to 400°C (abstract) and the flow temperature as specified (see column 2, lines 37-55). The composition is composed of structural units I-IV wherein the flexural modulus falls within the specified range (column 5, lines 53-55 and examples).

With specific regard to Applicant's claim 5, Nagano teaches the materials to have been melt-kneaded via a twin screw extruder (PCM-30, mfd. by Ikegai Iron Works, Ltd. (column 6, lines 35-38)). This twin-screw extruder has an upper stream side and a lower stream side and it is well known in the art of extrusion to perform the functions of this particular extruder as specified by the Applicants.

Art Unit: 1756

With regard to claim 6 and 9-10, the inorganic filler is in the form of fiber having an average diameter of 1 to 20 μm and the average fiber length is 10 to 300 μm (4:11-24 and 4:32-39). Further, with regard to claim 14, one or more of a small amount of a thermoplastic resin or thermosetting resin may be added (5:11-16). With regard to claim 13, the filler may be a coloring agent, pigment, antioxidant, heat stabilizer, UV absorber antistatic agent or the like (5:1-10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai, as applied above.

Asai teaches a wholly aromatic polyester composition containing a wholly aromatic polyester resin (40-79% by weight), which exhibits a liquid crystalline property in a molten state, glass fiber (5-25% by weight) and a fluorocarbon polymer (0.5-10% by weight). Asai teaches needlelike or fibrous filler materials such as graphite or talc or glass (10:6) wherein the upper limit of the average particle size is 50 μm or less from the view-point of the molded articles and around 5 μm or more particle size (7:50-8:2). However, Asai does not teach that the specific glass fiber may be treated with a multitude of different materials.

Asai does, however, note a multitude of different purposes for the filler materials. Asai further teaches numerous different filler materials and treatments.

It would have been obvious to one of ordinary skill in the art to make the wholly aromatic liquid crystalline polyester materials formed with fillers such as chemically-resistant glass and saline or titanium coupling agent treatments as these treatments are well known in the art of fillers for reinforcement purposes and Asai teaches that the filler be for use as reinforcement against the elements. Reinforcement includes heat stabilization, UV absorption, colorant, antioxidation, mold release, etc (10:3-6).

Response to Amendment

The amendment to claim 4 has overcome the objection made to this claim with regard to improper multiple dependency issues.

Response to Arguments

Applicant's arguments filed 2/3/2003 have been fully considered but they are not persuasive. Applicant argues that the claims are not anticipated due to the lack of specific mention of filler fiber size in Asai. Applicant further argues that the preference of Asai toward naturally scaly graphite in the examples furthers the argument that the reference does not teach 2-20 μm diameter materials. Applicant does, however, attest to the fact that Asai does teach the filler to be "fibrous or needlelike reinforcing materials"

Asai teaches needlelike or fibrous filler materials such as graphite or talc or glass (10:6) wherein the upper limit of the average particle size is 50 μm or less from the view-point of the

Art Unit: 1756

molded articles and around 5 μm or more particle size (7:50-8:2). Less than 5 μm is taught to be less desirable, but certainly anticipated.

Same arguments hold true for Nagano. Nagano teaches that the composition is composed of structural units I-IV wherein the flexural modulus falls within the specified range (column 5, lines 53-55 and examples). Nagano further teaches the inorganic filler is in the form of fiber having an average diameter of 1 to 20 μm and the average fiber length is 10 to 300 μm depending on if the material is plate like or needle like (4:11-24 and 4:32-39). The filler may be a coloring agent, pigment, antioxidant, heat stabilizer, UV absorber antistatic agent or the like (5:1-10).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

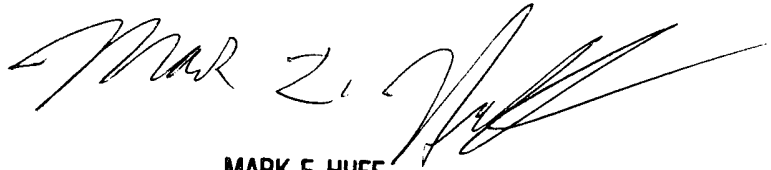
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1756

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 703.305.4835. The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 703.308.2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

A handwritten signature in black ink, appearing to read "Mark F. Huff", with a stylized flourish extending to the right.

MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

JRS
May 5, 2003